

CLAIMS

What is claimed is:

1. A radio frequency (RF) metrology system for monitoring output of an RF generator to a load comprising:

a sensor component, the sensor sensing at least one of a voltage and current applied to a load;

an analysis module component, the analysis module component receiving at least one of a voltage and current sensor signal from the sensor component;

wherein one of the sensor component and the analysis module component may be replaced while the other component remains installed and wherein the RF metrology system is recalibrated following replacement of the one component.

2. The RF metrology system of claim 1 wherein the sensor component further comprises a sensor module and a cable, the cable interconnecting the sensor module with the analysis module component.

3. The RF metrology system of claim 1 for the comprising a scaling matrix input to the analysis module component in order to calibrate the RF metrology system following installation of the one replaced component.

4. A. method for replacing components of an RF metrology system for monitoring output of an RF generator to a load comprising the steps of:

providing a RF system including a base sensor and a base analysis module;
calibrating a base RF metrology system;
determining a frequency response characteristic of the base sensor;
determining a response characteristic of the base analysis module;
characterizing a frequency response of a group of sensors other than the base sensor;
determining a set of calibration coefficients; and
generating a scaling matrix in accordance with the calibration coefficients.

5. The method of claim 4 further comprising this step of replacing one of the base sensor and the base analysis module with one of a pool sensor and a pool analysis module to define a substitute RF metrology system.

6. The method of claim 5 further comprising this step of applying the scaling matrix to substitute RF metrology system in order to calibrate the substitute RF metrology system.

7. The method of claim 4 wherein the step of calibrating a complete system further comprises the steps of:

providing a source of RF power for application of an RF signal to load;

utilizing the RF metrology system for measuring application of the RF signal to the load.

8. The method of claim 7 wherein the load comprises a plurality of impedances.

9. The method of claim 8 wherein the impedances include a plurality of a short circuit impedance, an open circuit impedance, and a 50 ohm impedance.

10. The method of claim 4 further comprising the step of characterizing a frequency response of the base sensor.

11. The method of claim 10 further comprising the step of characterizing the analysis module.

12. The method of claim 11 further comprising providing a pool of sensors, each sensor of which is characterized for operation with the RF metrology system.

13. The method of claim 12 further comprising the step of determining a set of calibration coefficients for the RF metrology system.

14. The method of claim 13 further comprising the step of generating a scaling matrix to define the RF metrology system.